

REMARKS/ARGUMENTS

Favorable reconsideration of this application as currently amended and in view of the following remarks is respectfully requested.

Claims 1-15 are currently active in this case. Claim 1 has been amended by the current amendment. No new matter has been added.

In the outstanding office action, claims 1, 3-5, 7, 10, 12, 14, and 15 were rejected under 35 USC 102(b) as being anticipated by U.S. patent No. 5,817,992 to D'Antonio; claims 2 and 13 were rejected under 35 USC 103(a) as being unpatentable over D'Antonio in view of U.S. patent No. 4,815,018 to Reinhardt; claims 6,8, and 9 were rejected under 35 USC 103(a) as being unpatentable over D'Antonio in view of U.S. Patent No. 4,496,024 to Wolf; and claim 11 was rejected under 35 USC 103(a) as being unpatentable over D'Antonio in view of U.S. Patent No. 6,112,8523 to D'Antonio.

The present invention is directed to a device for diffusing sound. By way of a non-limiting example, the device can be used in a home theatre. To that end, the device includes a membrane; a first substrate disposed on a first face of the membrane and having (i) a plurality of first absorptive regions and (ii) a plurality of first reflective regions formed as wells in a face of the first substrate, the first absorptive regions and the first reflective regions arranged in a pre-defined grid pattern; and a second substrate disposed on a second face of the membrane and having (i) a plurality of second absorptive regions and (ii) a plurality of second reflective regions formed as second wells in a face of the second substrate, the second absorptive regions and the second reflective regions arranged in the pre-defined grid pattern. The pre-defined grid pattern is arranged in accordance with a random binary sequence where a zero of the binary sequence is represented by a first absorptive region of the plurality of first absorptive regions and a one is represented by a first reflective region of the plurality of

first reflective regions. The second substrate is disposed on a second face (opposing the first face) of the membrane 180 degrees out of phase relative to the first substrate.

The configuration of the device enables a construction having a depth less than 4 inches. Further, a sound wave directed to substrate perpendicular to the substrate will be effected in the following manner. First, there will be absorption due to the first substrate. Subsequently, there will be reflection due to the membrane at a frequency which is a function of the mass and stiffness of the membrane. Finally, a wave having a frequency below that frequency will pass through the membrane and further absorbed by the second substrate which is 180 degrees out of phase to the first substrate. See paragraphs [0006] and [0018] of the specification.

In contrast thereto, D'Antonio discloses a two-dimensional binary amplitude diffusor (hereinafter referred to as "the BAD panel"). The Bad panel has a plurality of reflective and absorptive regions arranged in a randomly generated grid pattern. However, D'Antonio fails to teach or suggest a diffusor device including first and second substrates with a membrane sandwiched there between, where the second substrate is disposed on the second face (opposing the first face) of the membrane 180 degrees out of phase relative to the first substrate.

The official action asserts in response to Applicant's November 13, 2006 arguments that:

D'Antonio's Fifth Embodiment teaches a baffle or membrane having BAD surfaces on both sides (Page 6, Lines 31-34), as well as a BAD panel (Figure 7) and an inverted BAD panel (Figure 8) arranged on an array (Col. 4, Lines 49-56). D'Antonio teaches using the panels in an array to minimize "lobing". This can further be seen in Figures 14 and 15 (Col. 7, Lines 40-61). Normal and inverted panels are arranged on opposite sides of one another, and are separate {sic} by a membrane as can be seen in the Figures. Further, Applicant gives not structural limitations as to where the first and second sides of the membrane are located. The only requirement is the substrates are 180 degrees out of phase relative to one another. Therefor {sic}, panels 180 degrees out of phase with one another may be attached at an edge as seen in Figures 14 and 15.

Applicants respectfully traverse. Applicants respectfully point out that the panels illustrated in Fig. 15 are not provided on opposing faces of a membrane. Rather, the panels are formed in a grid-like manner.

For the foregoing reason, Applicants submit that D'Antonio fails to teach or suggest the subject matter recited by claim 1 or the claims that depend from claim 1. Claim 12 is the method analog of claim 1. Claim 12 and the claims that depend from claim 12 are believed to be allowable for at least the same reasons that claim 1 is believed to be allowable.

In view of the foregoing, no further issues are believed to be remaining. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



---

W. Todd Baker  
Registration No. 45,265